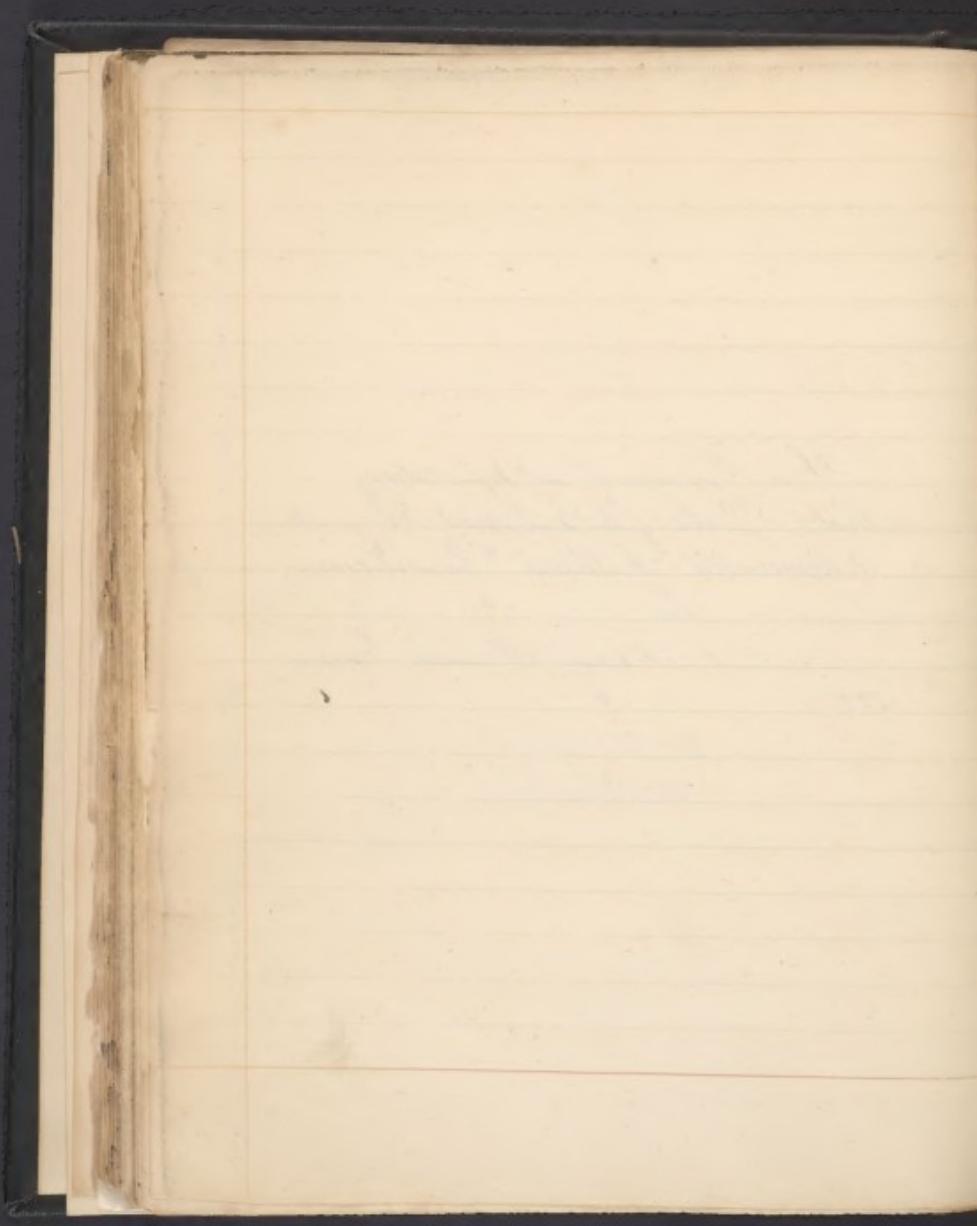


In Inaugural Dissertation,
on that Species of Discarded Respiration,
denominated Asthma Convulsivum.

by
Henry Maxwale Tucker

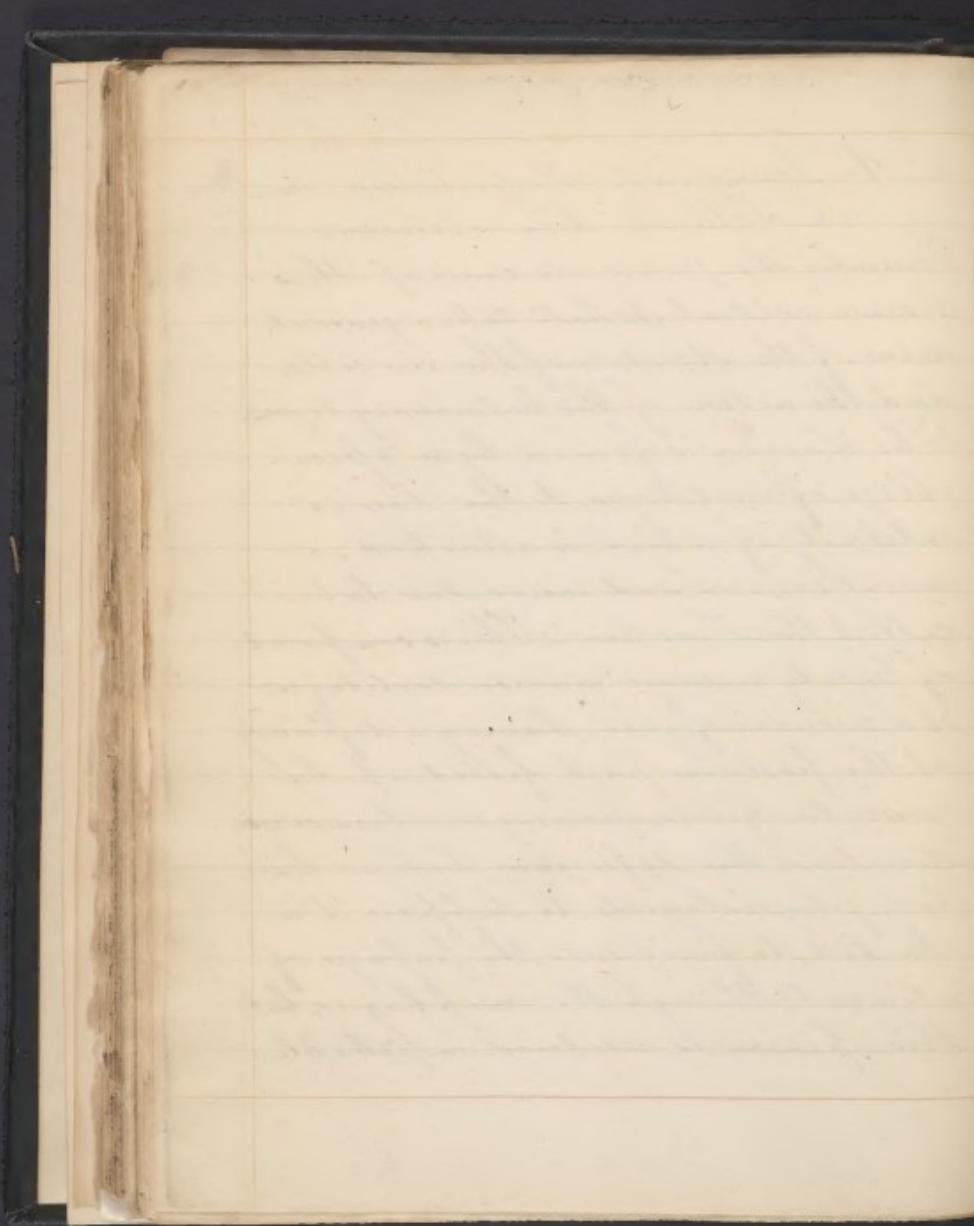
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(Mrs. Tucker)

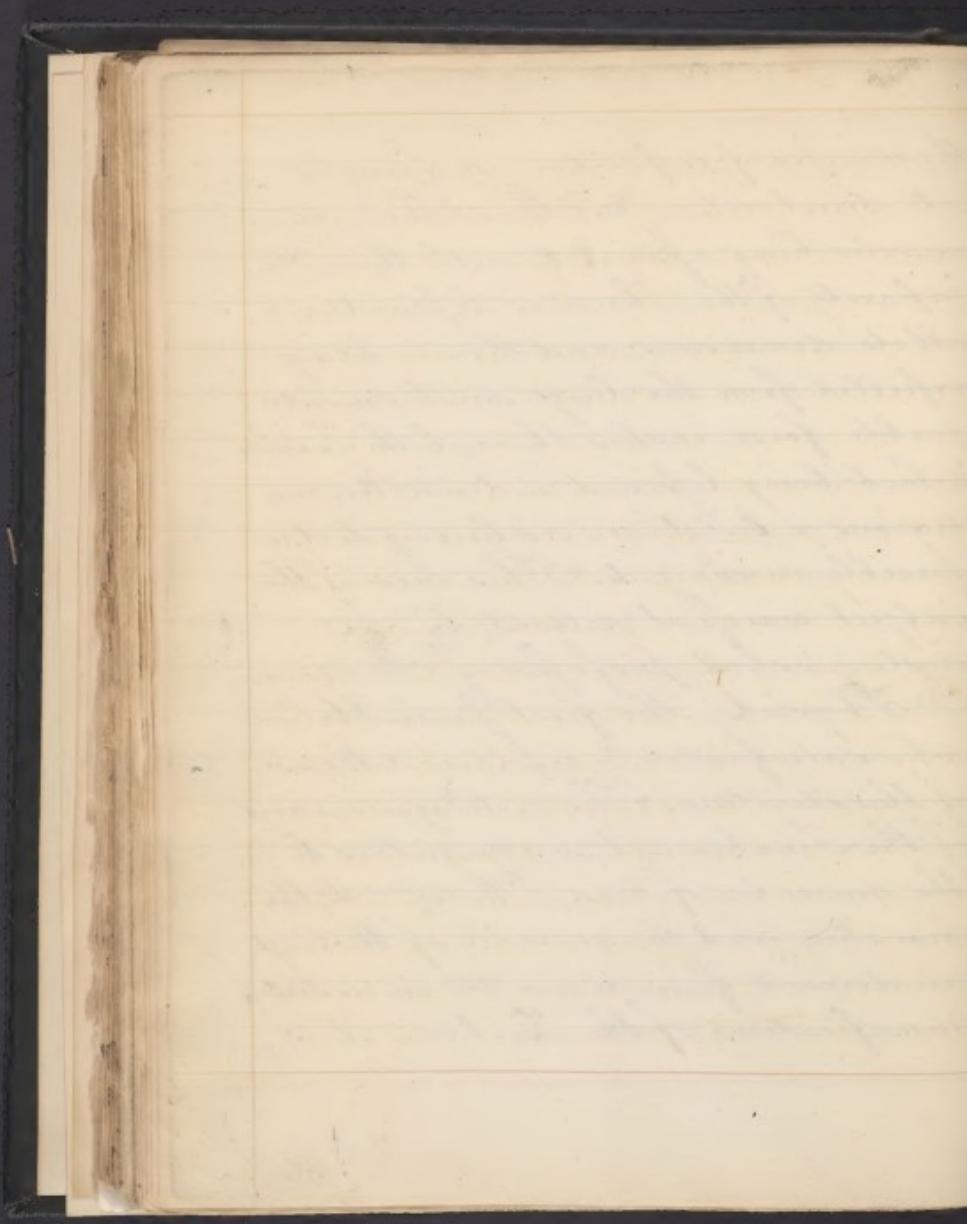


*Cinaugural Dissertation. on
Asthma Convulsivum.*

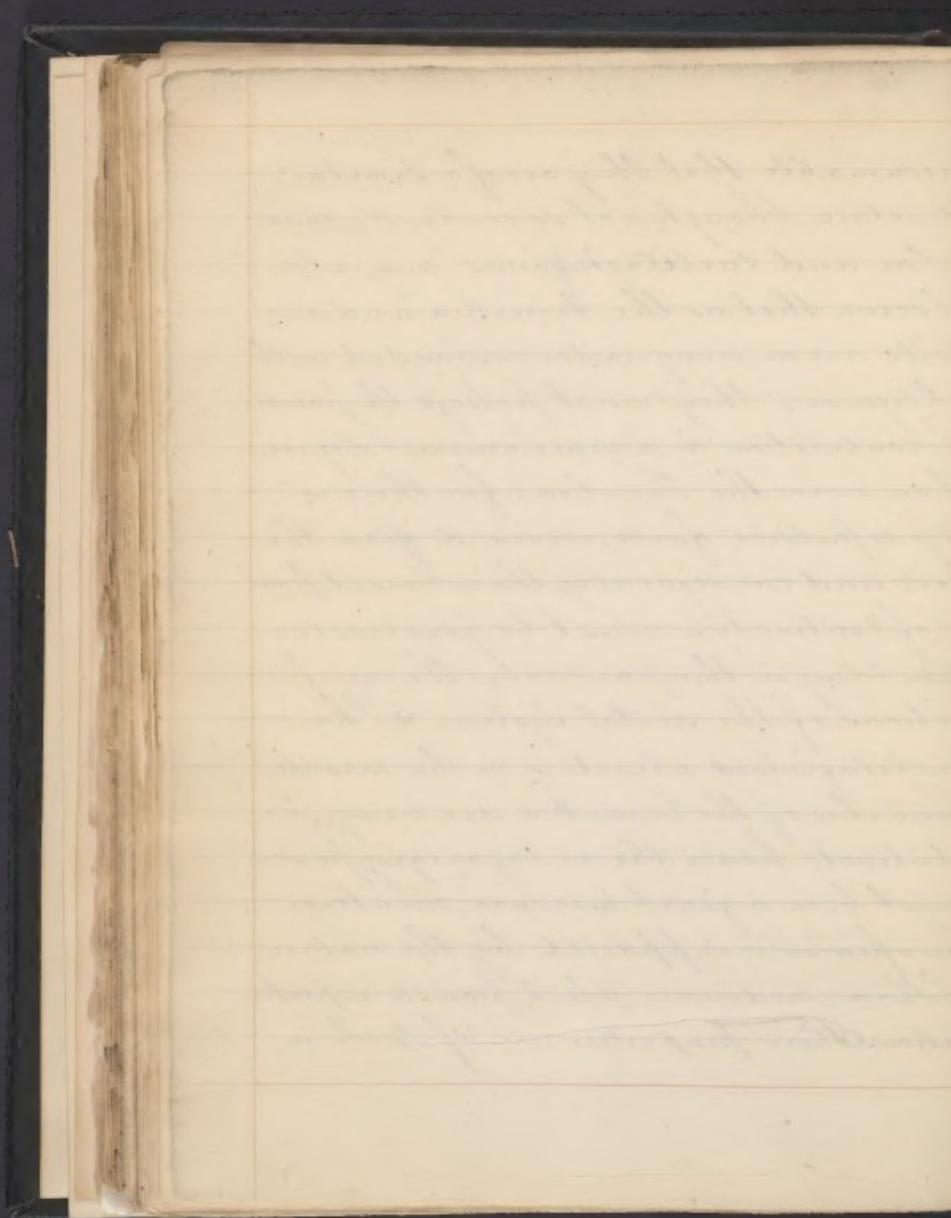
To render the proximate cause of this disease evident, I shall take a general view of the structure of the air cells, and the action of the pulmonary organs. The Larynx is formed by an assemblage of cartilages, to the lower extremity of which, is attached, a membranous and muscular tube, called the Trachea. This is composed of twenty or more narrow cartilages, of a circular figure, having a deficiency at the posterior part, filled up by muscular fibres, running in a transverse direction; this deficiency behind has led physiologists to suppose it intended, to facilitate the passage of aliment, through the oesophagus, but this opinion is rendered improbable



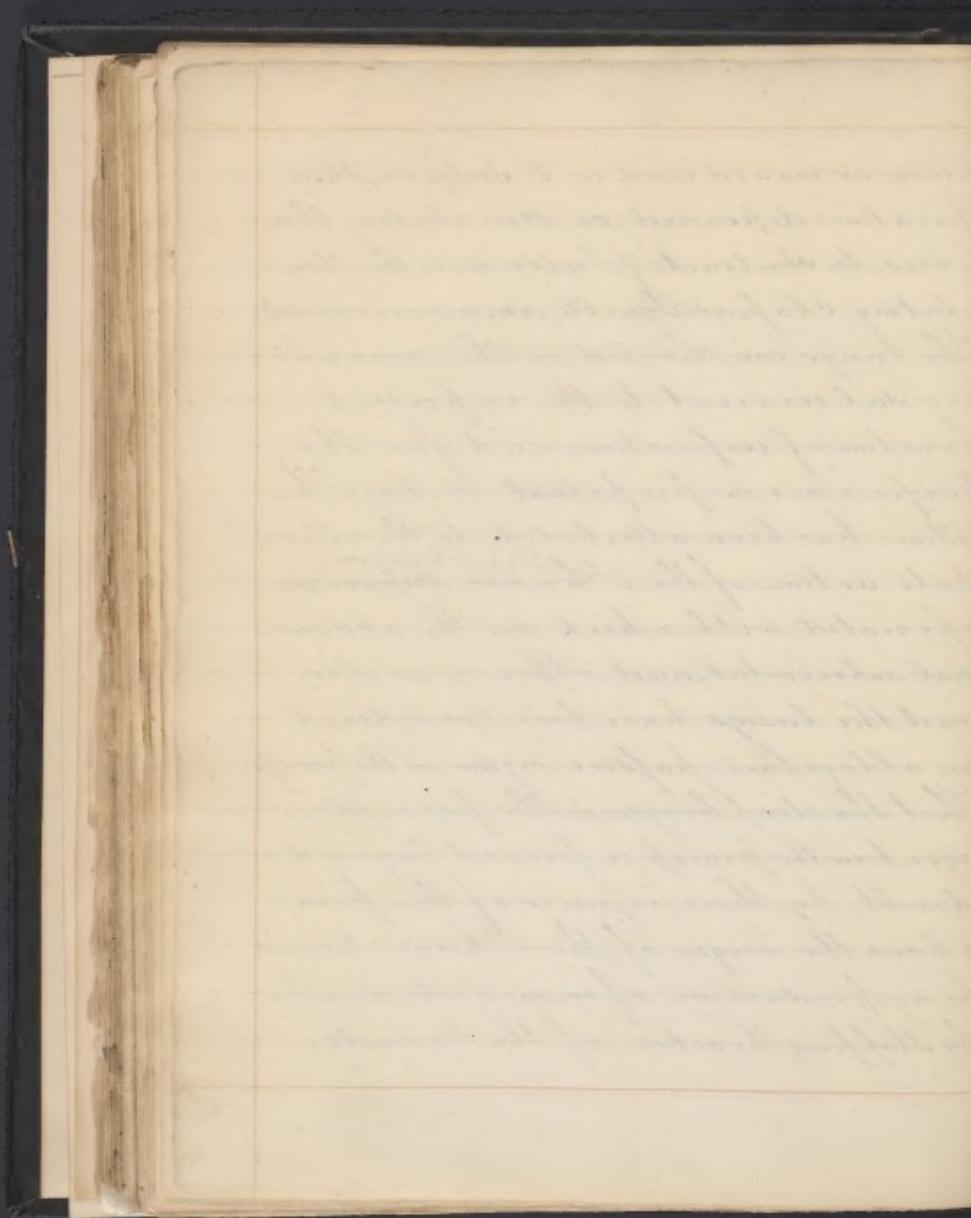
by the fact, that the oesophagus is not
intimately connected, with the posterior
part of the Trachea. In addition to this,
it has been observed, that a similar ar-
rangement exists, in the larger branches
of the bronchia, which would not be
necessary, if intended alone for this pur-
pose; and nature has destined this for a
more important function. In addition
to this muscular structure, there is another
no less evident, consisting of longitudinal
fibres, occupying the interstices, between
the cartilages. Now it is probable that
these muscular fibres, are intended to
lefan the dimensions of the tube, in order
that collections of mucus, pus, and other
extraneous matter may be expectorated with
ease. That this arrangement facilitates
expectoration cannot I think be doubted;
for an exertion being made, not only



the muscles of respiration are brought
into direct action, but the abdominal
muscles being associated with them, the
capacity of the Thorax is lessened, in
all its dimensions; and the air being
expelled from the lungs, with consid-
erable force, dashes through the Trachea,
which being lessened in diameter, any
mucus or substance adhering to it, is
forcibly discharged. This view of the
subject was first delivered by our
distinguished professor of Anatomy,
Dr. Physick, the first person I believe
who satisfactorily explained the use
of this structure. The cartilaginous rings
of the Trachea act as elongators to
the muscular fibres. (Hunter) As the
bronchia and the air cells of the lungs
are derived from, or are the immediate
ramifications of the Trachea, it is



presumable that they are of a similar structure, though not so evidently muscular and cartilaginous. I may also observe that, as the bronchia and air cells are in many instances, loaded with phlegm; they must possess the power of contraction in a more eminent degree, than even the Trachea; for there is less expulsive force, received from the air; and consequently, the inherent power of contraction must be greater; resembling in this particular the ramifications of the coortal system. The cartilaginous structure in the minute bronches of the bronchia are very indistinct; hence the antagonizing power must be in a great measure wanting. This opinion is supported by the nature of those medicines which promote expectoration. Their properties are of such a



nature, as would lead us to suppose, their
operation depended, on stimulating these
fibres to contract. I allude to the Stim-
ulating Clap, as Squilli, ammonia, &c.
The lungs contracted in this manner
are subservient to the important
function of respiration, and for this
purpose are in perpetual motion. This
action has been attributed to the alter-
nate action of the ^{Dia phragm;} ^{Lungs} ^{Abdomen}
associated with which are the abdo-
mal, intercostal, and other muscles,
and the lungs have been considered
as altogether passive organs in the process
that the dia phragm is the principle
agent in the process, is proved beyond
doubt, by those injuries of the spine
above the origin of the Thoracic Nerves,
being productive of immediate death,
by stopping the action of this muscle.



Yet I consider the bronchies, and air cells
to assist in this process, in the following
manner. It has been observed by
the physicians, that the oxygen in the atmosphere
which is received into the lungs, undergoes
a change, combining with the carbon
contained in the lungs, forming carburet
acid gas; the heat imparted to this air by
the system, produces an expansion, this
expands the air cells of the lungs, of
numerous fibres, of which, being stimulated
to contract, and the diaphragm assisting
in the operation, the air is expelled; after
this the diaphragm contracts, the air
cells return to their former dimensions,
which produces a vacuum; thus the at-
mosphere air fills a second time, the
heat again imparted to this air, produces
again the stimulus of contraction, and its
other effects. But in asthma, the muscular



fibres composing the air cells, cannot contract and dilate so readily, in consequence of the spasmotic constriction affection them; and it is this, which produces the difficulty of breathing, and other distressing effects which characterize the complaint. That there is a vacuum in the cavity of the chest is rendered certain by a circumstance well known to Surgeons, I allude to those wounds of the chest, in which the cavity of the pleura is penetrated; in this case the lung on the injured side is collapsed, & unable to perform its function, being interrupted, by the air rushing through the wound, into the cavity of the pleura, filling up the vacuum.

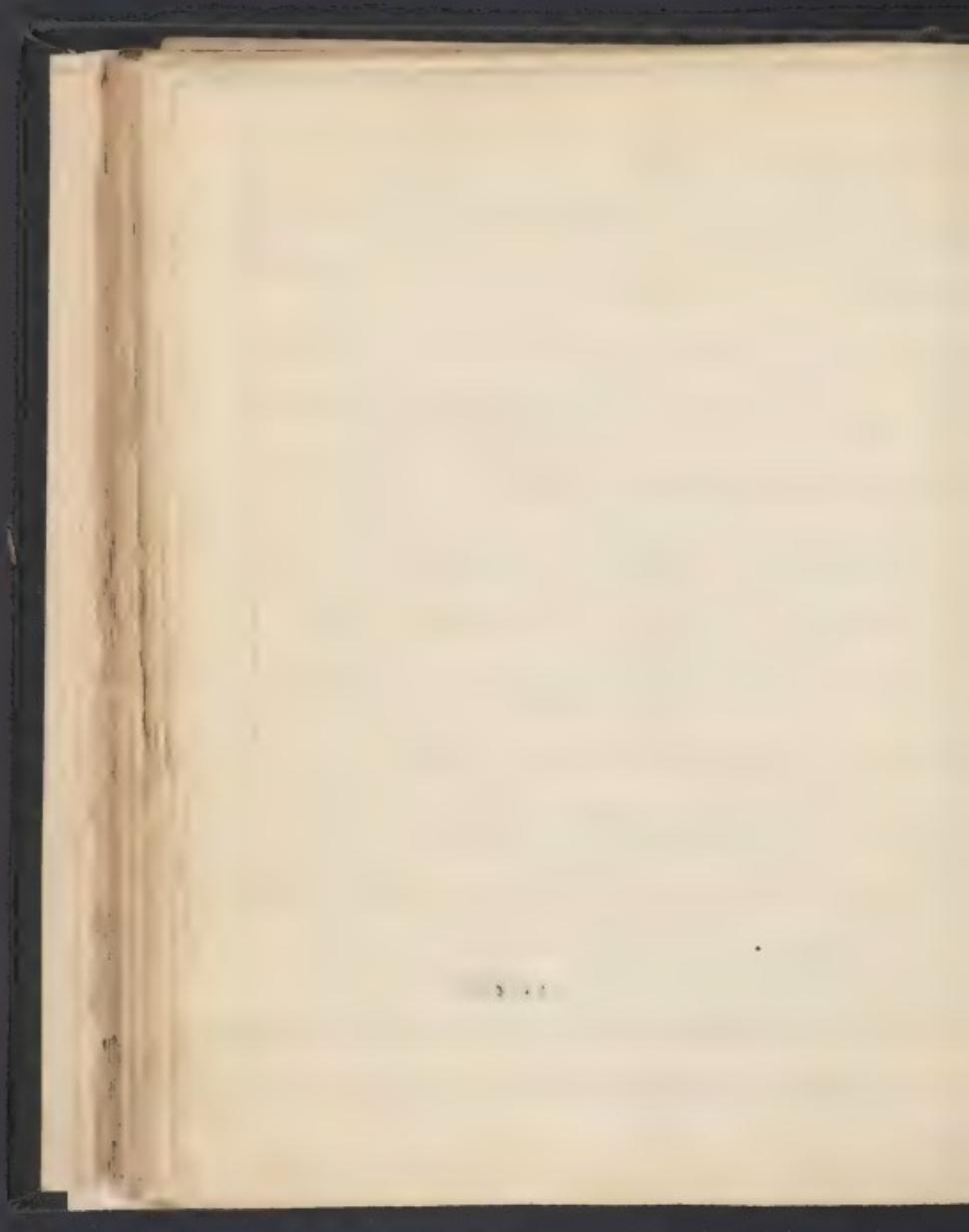
Having premised these general observations, I shall now proceed to the history of the disease under consideration. Morological writers have divided



o follow who has officiated over this year
nearly a day, and the sum over or expe-
nses relating to the same can hardly be more
exactly made of turbulent precise &
similar, probably I have in my thoughts
so far to expect the definition as will be
given has also been distinguished into
three parts and symptoms. In the
second fully evinces the pathology of this
disease. The name we may be
limited into those acting immediately
on the lungs, and such as affect the
lungs secondarily. Under the former
head may be arranged the fumes of
certain metals as arsenic etc. dust and
the odour of certain substances, and species
whence seen, as also certain states of the
atmosphere. Among the causes which
secondarily affect the lungs, the most
prominent are dryness, and other



derangements of the Stomach & alimentary canal. In such cases, the lungs are sympathetically affected. Many other causes have been supposed to produce asthma, as uterine irritation, &c. But there is reason to believe, that the first fund in these cases, is owing to derangement in the Stomach. The intimate connection between the uterus and Stomach have been noticed in all writers on the subject. There is scarcely a disease of the uterus, but involves a disturbance in the stomach. It is very not unusual, for hemorrhage from the uterus to subside, upon vomiting coming on spontaneously; yet it is generally acknowledged, that women, instead of halting a stop to the hemorrhage, decidedly, exaccerbate it. It appears strange that the same effect, differently consider'd, should produce such opposite results; but in the



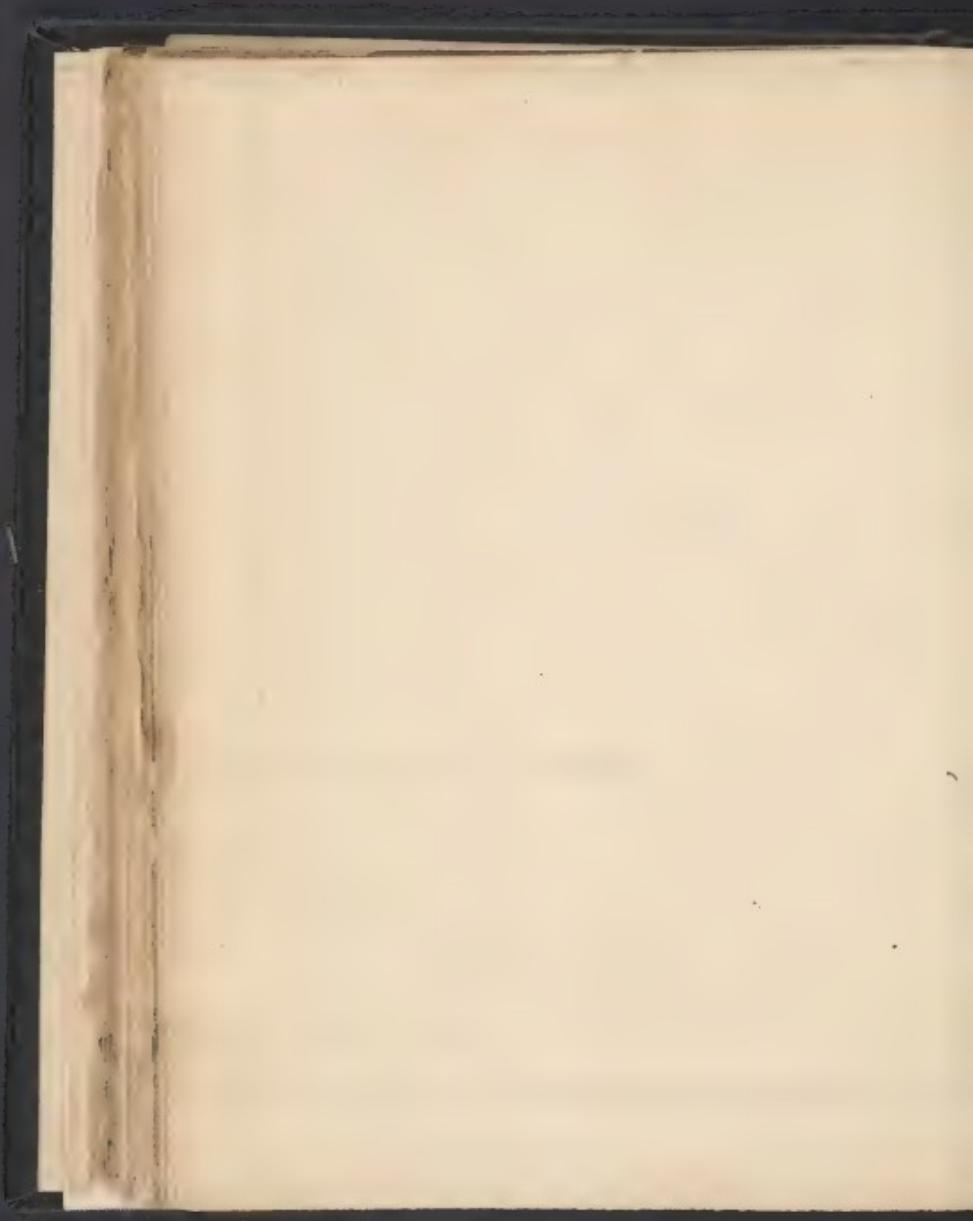
former instance, I presume that the Heart
is the principal agent, in the act of vomiting;
but when excited by certain medicines, the
diaphragm, and abdominal muscles
are brought into violent action; which
by pressing on the blood vessels, determine
the blood to the uterus, & thereby exer-
cise the mischief. The same reasoning
may be applied to the exhibition of Emetic
in pregnancy, which irritate and excite
the uterus into premenstruation. The
paroxysms of Asthma are most frequent
in warm weather; the reason of this is
very obvious: heat relaxes the surface,
and in that way weakens the digestive
organs; and also by debilitating the sys-
tem, even in cold, by exposure, respiration.
nothing so effectually enervates the
digestive organs, as the **cold** bath: pro-
vided the system is in a "susceptible condition"



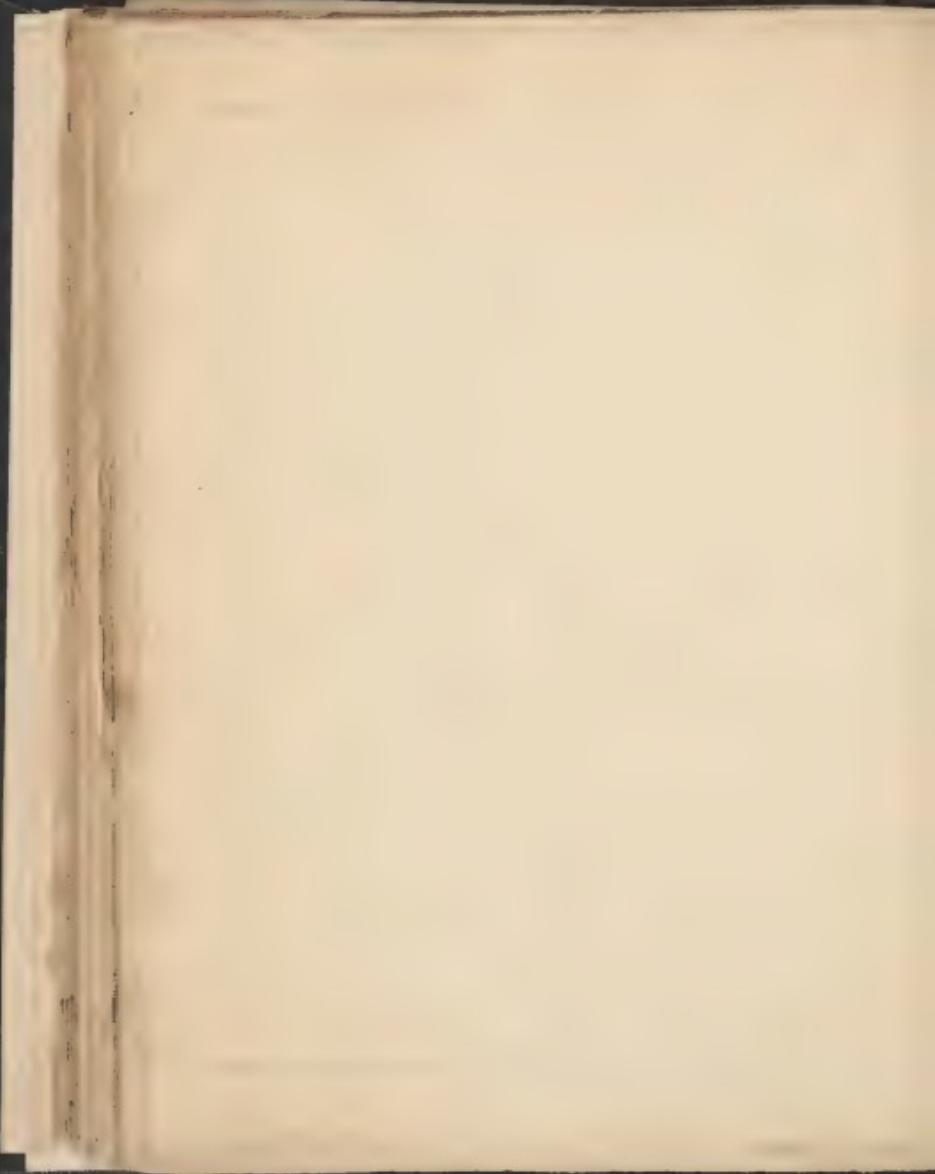
Certain districts of country subject peculiarly
to asthma, without any apparent cause.
Sudden changes from heat to cold, reverse,
repelled eruptions, Metastasis of
gouty. The action of certain substances,
as Spikenard, found in some cases of this
kind are on record. The paroxysm is
most frequent at midnight, particularly
after the first sleep. The cause, this is not
very clear - May it not be owing to the
action of the ^{playful} being more feeble at this
period than in other times? or perhaps
the function of inspiration is less active
at this time. The Dr. Analogy certainly
supports this opinion, as the arterial
and other animal functions are gene-
rally considered as less vigorous at
night. Dr. Darwin attributes it to the
accumulation of mucus during sleep.
I shall now proceed to describe the



phenomena observable in a paroxysm.
A day or two preceding the attack,
there are certain signs, denoting a
disorder of the viscera; these are
a sense of distension, flatulency, eas-
eineess, and eructations; there is also
pain in the head. As evening approaches
a sense of tightness in the chest is
perceived. Together with aggravation of
the other symptoms; a pain above the
eye brows is a very common attendant; the
patient is irritable; as regards the appetite
there is sometimes a disposition and the
part of the patient to eat, and if indul-
ged uniformly hastens, and aggravates,
the approaching paroxysm. At this time
there is no very evident alteration of
the pulse; it is often quicker than natu-
ral. These are the symptoms preceding
the attack very generally; but in some



instances very few of these are observable.
The patient relives, but about midnight
he awakes, with considerable difficulty
of breathing, attended with a distressing
noise, a sense of weight on the diaphragm
and straitness in the lungs; he immedi-
ately and as if were instinctively flies
to the window to exertion; and as the
difficulty of breathing is greatest in the
recumbent posture, he studiously avoids
it. When the fitness goes is at the same time
the head is very distressing. The
countenance is generally pale, but
at this time is pallid and sunk, indi-
cating considerable anxiety and distress.
Considerable stupor not uninterestingly attend.
The pulse is not a quid: sometimes it is
regular, small, & quick; but at other times
it is not much affected. The respiration
the fitness goes pale; but after the



termination it is high coloured, and sometimes deposits a sediment; If a relif be not afforded, the symptom will continue until morning, at which period there will be a remission of the symptoms; the difficulty of breathing is lessened, particularly if a perspiration is free; some difficulty of breathing pain in the head continues the next day, and all exertions distract the patient, with difficulty of breathing. The next evening, a second paroxysm takes place; and in this way the disease may continue two weeks, debilitating the patient, if the proper remedies be not resorted to, & the remote causes continue to act. These are the phenomena attending the most frequent form; but another variety of the disease, not unfrequently presents itself: in this, the difficulty of breathing



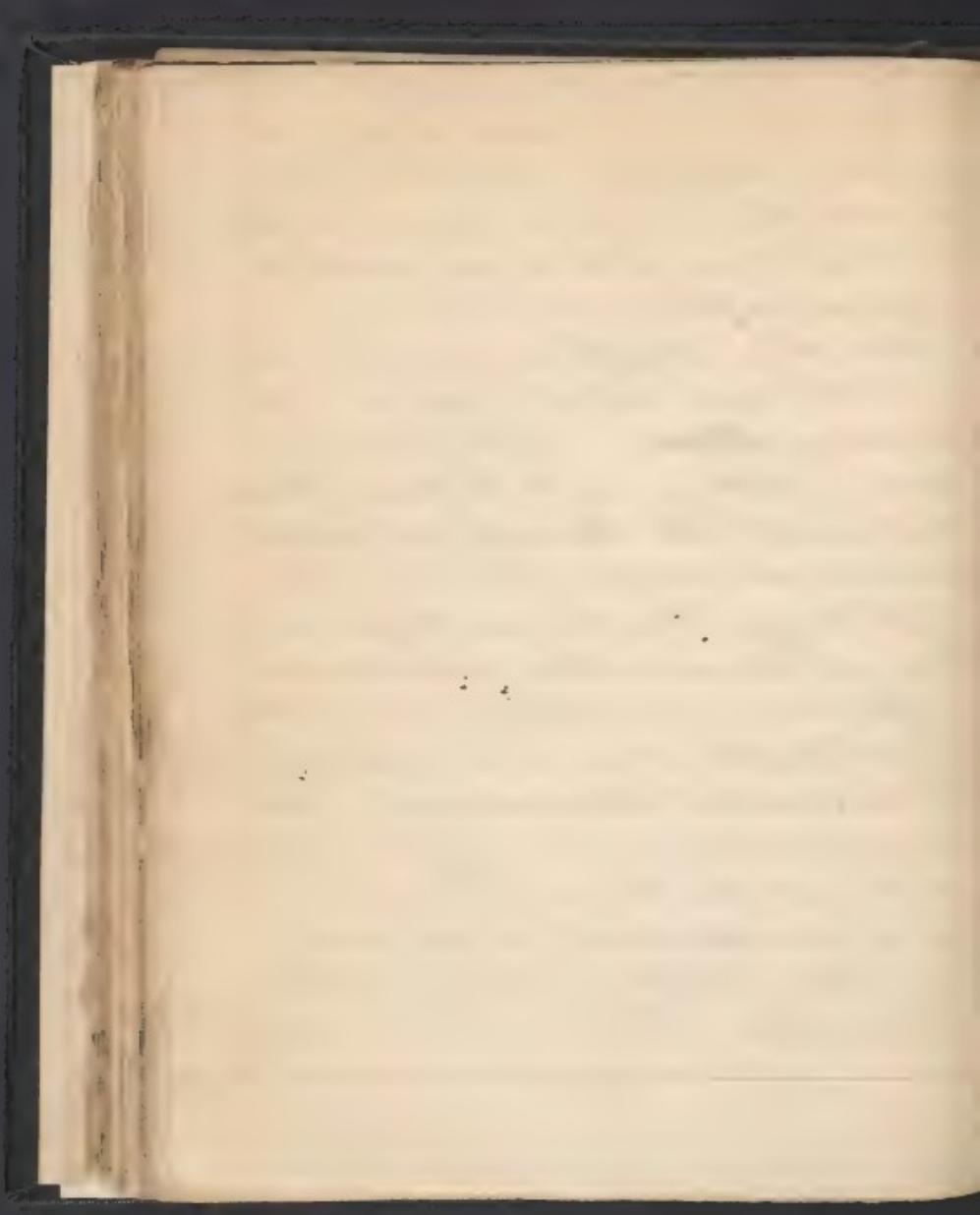
is very considerable, the wheezing is very
audible; the pain in the head is not so
great, as in the former case; the countenance
is pale, haggard, and anxious; the sur-
face is cold, and patient sweats, not
infrequently occur; the pulse is feeble;
patient sighs however sometimes take place,
the fear of desolation is greater, and
despair, melancholy occurs. This is the
true disease acting upon a debilitated
and cachectic state of the system.
Dr. Price an ingenious writer on this
supposes ~~that~~ the mucous in the
lungs, which is expectorated after
the paroxysm to be a cause of the
disease; and although he adduces
zonalical ~~anatomical~~ evidence to
support the opinion; yet he is cer-
tainly mistaken in this view: for in
the first place, the disease is never



preceded by the discharge of mucus,
and the mucus is seldom expectorated
before the second, or third day after
the paroxysm; and in the second place,
if this was the cause of the disease, we
might at all times expect the discharge,
which is not the case; indeed the views
of Dr. Green on this subject, have been
embraced by very few Subsequent Authors.
In the treatment of this disease, we
must keep in view the remote causes,
without this it is impossible to cure
the disease. To simplify them, I have
classified asthma according to the remote
causes, into three species. The first,
and by far the most frequent, cause
is irritation of the stomach, & other of
the abdominal viscera. I believe
asthma is almost all instances, to be
a symptomatic disease, depending



on a disordered Stomach; this sometimes
brings the disease into action; & in all cases
pre-disposes to the attack; in this latter
case upon the application of some or the
other rectifying cause, the disease becomes
dissolved. I have frequently observed
that the action of a particular cause,
would occasion a paroxysm at one
time, and at other times, might be
burdened with impunity. The second
Species, is where it is occasioned by
aerial excrements of the kind now
sacrific'd atmosphere, peculiar causes
by which particular situations are
subjective to asthmatics, effluvia aris-
ing from dusty air-sheds, flower-pots,
manure, and mortiferous fumes.—
The third division, comprehend
those depending on habit, or when
after the removal of the cause.

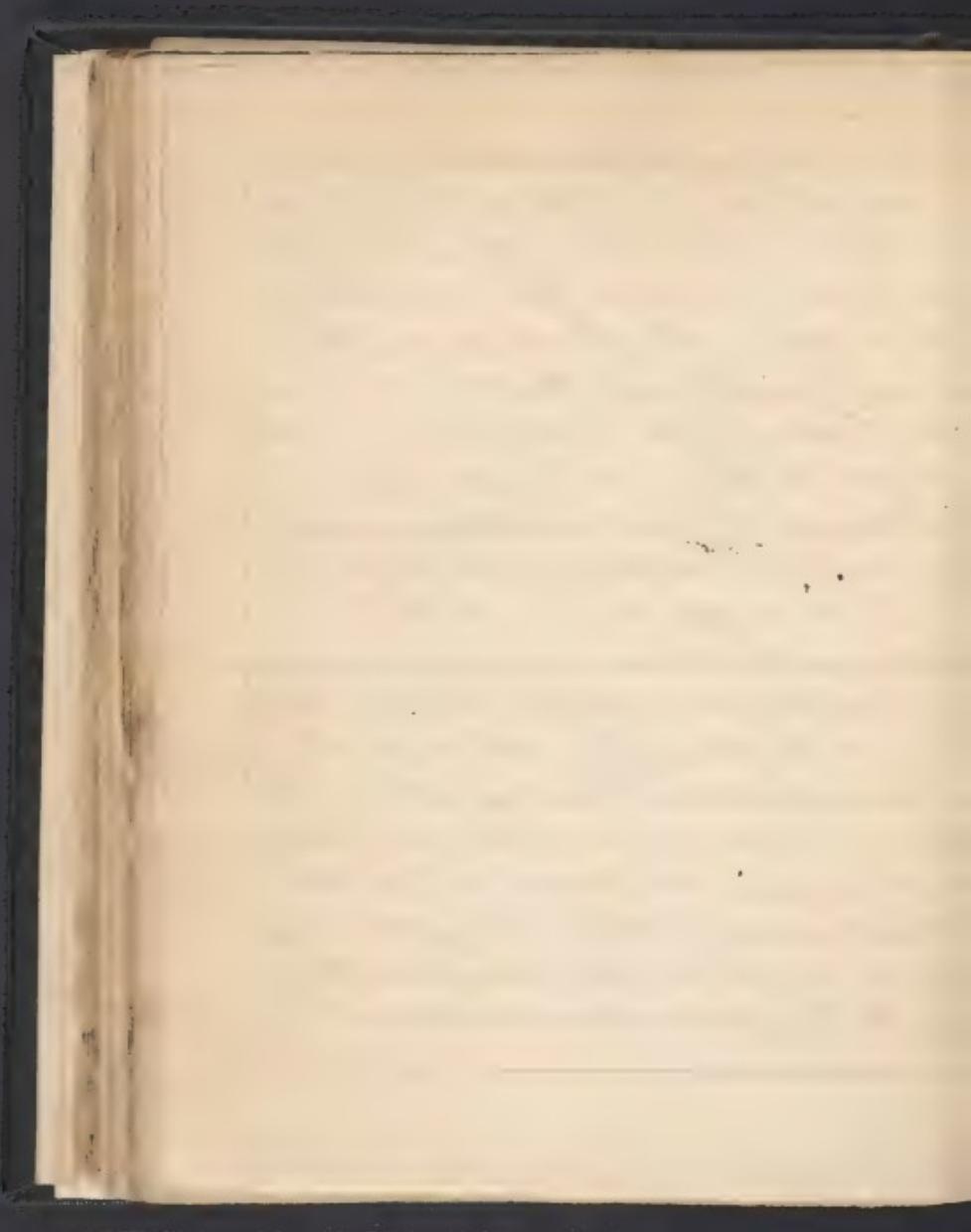


producing the disease, it still continues
to act: this not uncommonly occurs, and
it is to this form of the disease, anti-pha-
rmocines, airplay, to much power.

There three descriptions correspond
with the three last descriptions of the
inhalative Disease. The proximate
cause of which is attributed by Cullen
and most of the other authors to a spas-
modic constriction of the air cells
of the lungs. By Darwin the proximate
cause of the and other convulsive
affections is ascribed to violent exertions
of volition, to violent pain (the Lungs)
Squeezing. In the treatment of this
complaint, the remedies may be con-
sidered under two heads. Those which
are applicable during the paroxysm
and those which are proper in the
intermission. It would be a usef



considerable, the bark over, venesection
is not nearly safe; but the relief afforded
is often very striking; from XII. ℥. to
XX. ℥. may be taken. Generally the de-
pression, pain in the head, and other
urgent symptoms, will subside, upon
the flowing of the blood; and not un-
frequently the beneficial effect will
be durable. Topical depletion may also
be resorted to; cups applied to the back,
sc. Dr. Price, who is opposed to blood
letting in this disease, recommends, when
it should be resorted to, that the blood
should be drawn from the veins at
intervals, and in small portions. This
practice may be suited to the disease
as it occurs in Europeans, but in this
Country venesection is very generally
unserviceable in the cases, marked
by the symptoms enumerated above.



In addition to the relief afforded, the bowels are protected from Hydrocephaly, Con-
stipation, and other diseases which result
from ill caused pulmonary inflammations.

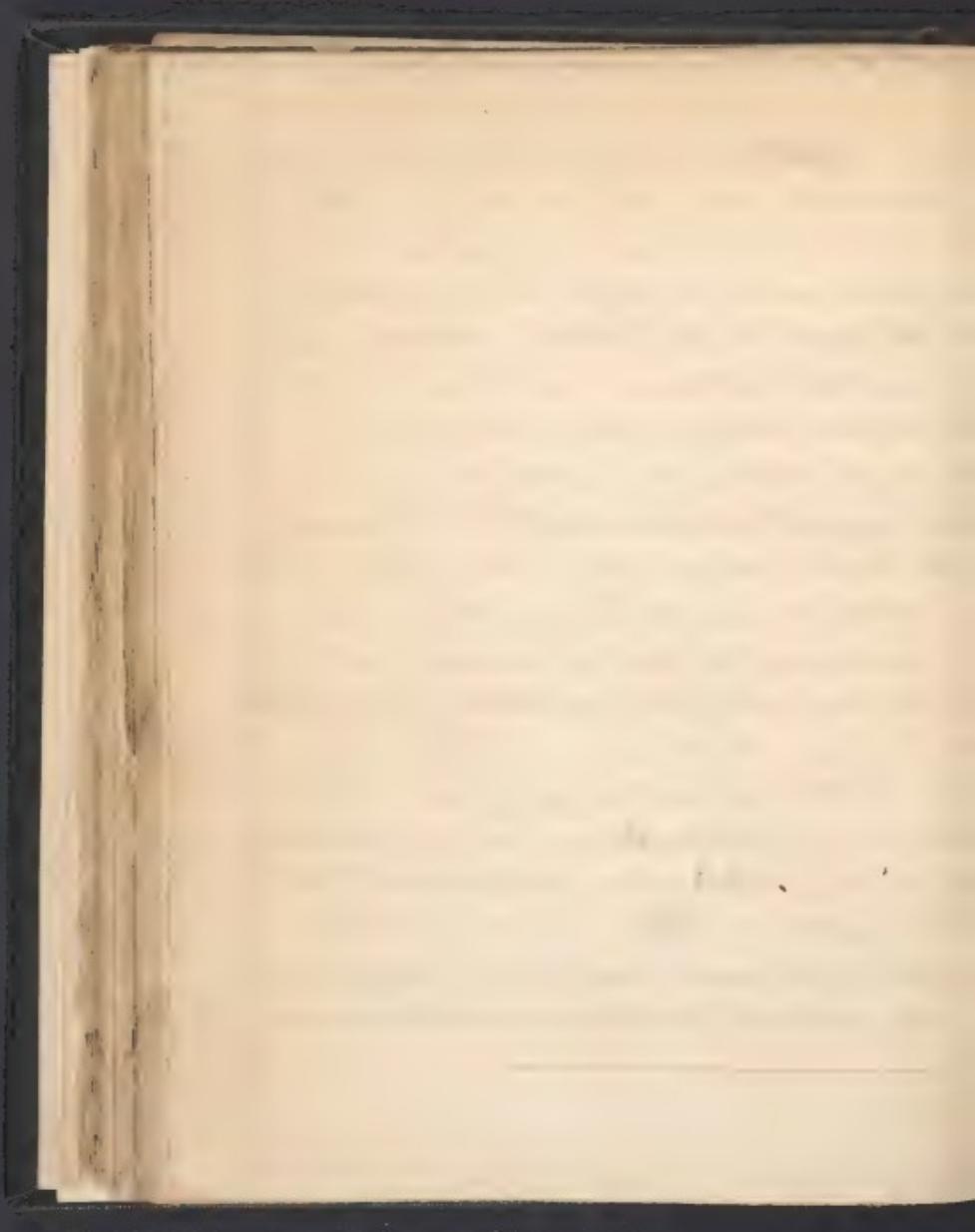
The remedies used in impertinence, are
Emetics. The majority of treatments
are, common and emetics; the best in
these cases is Specuanum. This was
first introduced into ~~the~~
~~in the treatment~~ practice of this disease by ~~elsewhere~~.
This is adapted to almost all cases of
the complaint; it is equally suited to
all stages of the disease previous to ac-
paroxysm, particularly if brought
on from excess in eating or drinking,
which is frequently the case. It is
well to add of tea prevent the occurrence
of the paroxysm; during a paroxysm
the relief afforded is often very striking.
Specuanum acts in this case first by



evacuating the contents of the Stomach.
2. By occasioning Spasms. 3. Detaching
to the surface, and by that means remov-
ing pulmonary congestion. 14th By in-
spiring now to the Stomach — or Mi-
ni. in the and ⁱⁿ other Spasmodic affection,
that the Sulphur Linum or white selenol
has been highly recommended as an Emetic.
If after bleeding & the exhibition of an
Emetic, the disease still continues, we
must examine further into the case; and
we will often find it to be kept up by
the morbid irritability of the bronchia
and cells. To remove which antispasmod-
ics are the appropriate medicines. Of them
Opium in combination with Camphor or
the last mentioned article by itself.
The Camphor should be suspended in milk,
^{or} ~~supposed in~~ Spirits, according to circumstances; the
most force latter in this case is generally



inspirable. In reducing cases you will observe
but when a will sometimes happen, the
expiratory whoozing is very great, threat-
ening immediate suffocation; where the
respiration of the patient is obstructed, loosing
from side to side, when the action of the
pectoral, scapular, & other muscles are
brought into action, with the view of
elevating the caravity of the thorax,
the exhalation fails, & the patient feebles
in such cases, & of course dies. It is proposed
in a wine glass full of brandy will af-
ford great relief by making a powerful
inhalation on the lungs. The only objec-
tion to the exhibition of spirit is the
drawbacks it occasions, in slightly attack-
ing a dose of Laudanum, with ease it often.
The Sulphuric Ether in combination
with Laudanum has been highly recom-
mended: the following is the formula.

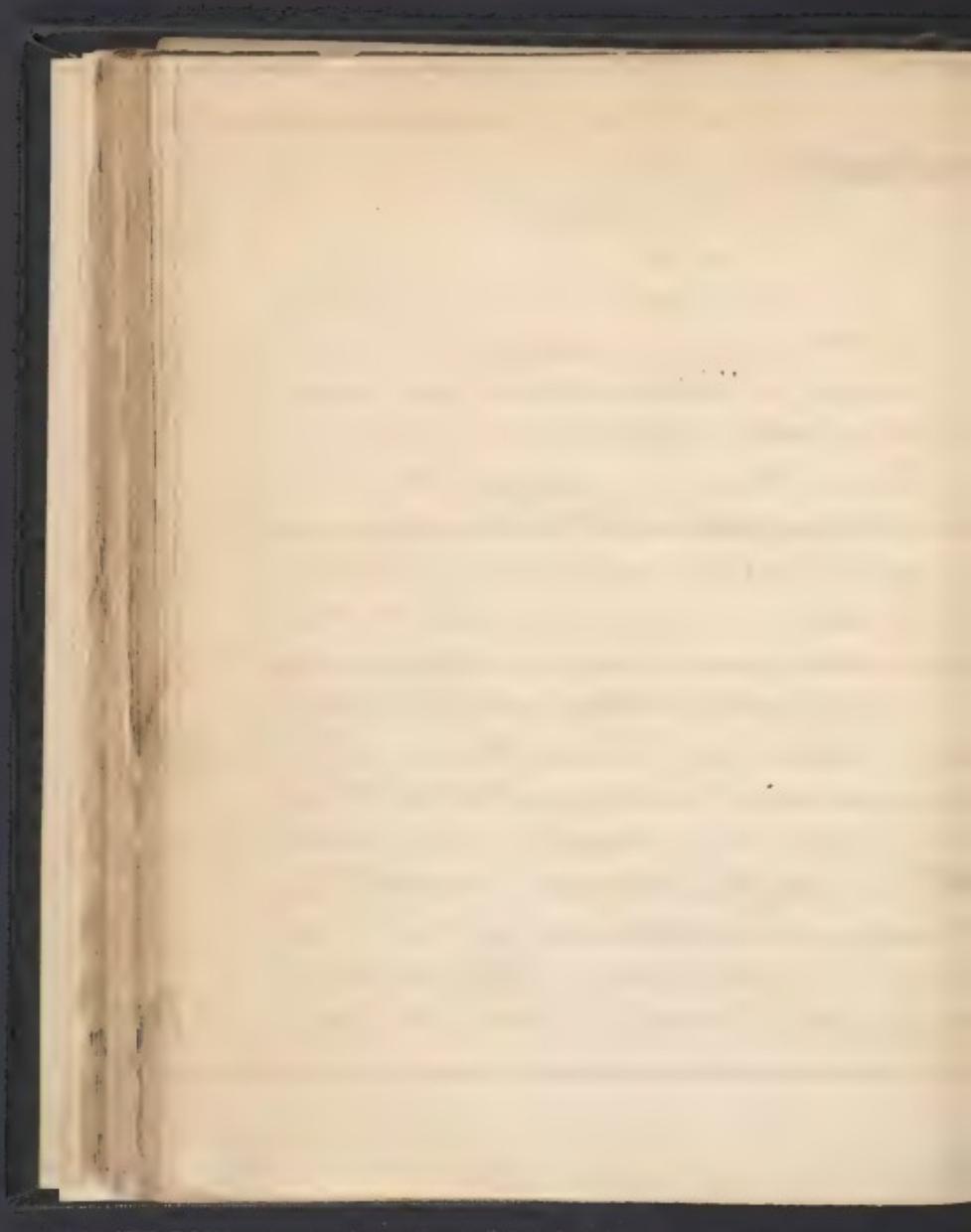


P. Other. Sull: 31

Fruit: Heb: gtt xl.

Mst. hauster.

To the list of antispasmodics, may
be added marsh, Burton, & safatida,
Hyoscyamus & others which have been
used occasionally with success, but not
sufficient to warrant my noticing them
particularly. Those above mentioned will
in general afford relief; provided the
remedies be properly adjusted to the
case. As a general rule, antispasmodics
are applicable to those cases depending
upon habit — Inhalations in this
case must not be neglected: they
relieve spasms, & promote expectoration.
When used, the instrument invented by
Hedge should be employed. The vo-
lume of water, or vinegar often answers
very well. Balsam Tolu has also been



~~been~~ been used. The formula recommended by Dr Physick in cases of Cataract, may I think, be advantageously used in the present case. It consists of Hoffmann's
^{liqueur} and Laudanum, of each one drachm. To be taken cold for half an hour or more. Chapman, therefore, The smoking of certain substances have been recommended against Cataract. These have been supposed useful, & occasionally injurious by Price; But Professor Chapman, whose experience with the latter article has, been great, has derived much advantage from the practice. The fomentations gapes so much in vogue at one time, do not at present excite much attention: They have been highly spoken of by Beddoe, & Harris.

This completes the treatment in the paroxysms. In the intervals now a purgative



Should be given. In cases where the bowels
are constipated, Calomel for many ~~many~~
reasons should be prescribed; in some
cases must be expected. As a general
rule purgation should be discontinued
as soon as the fever affords a natural
appearance. The cases requiring active
purgings are very rare; in general laxation
relieves better. Rhubarb 5 grains before
each meal, is very excellent. Where acidity
prevails the Cal. Magnesia or Boreaceous
mixture; but in general a lozenge will answer
better; particularly in those cases where
the hemorrhoidal discharge is suppressed.
I know a person, in whom the habitual
use of aloetic preparations produced
hemorrhoids, I know at that period the
haemostasis have gradually declined.
whether the effect is to be ascribed to
this or not, I am at a loss to determine.



I am disposed to attribute the effect, now
to a very particular attention to regimen,
& avoiding the exciting causes, together with
that change ^{in the system} which usually takes place at
the age of puberty. The fact is, certainly
interesting, from that account I thought
it worthy of notice. It might at first
view appear, that blisters would prove
serviceable; but experience has not con-
firmed this opinion. In cases, however,
desirous of removing the effusion of water in
the cavity of the chest, perpetual
blisters, as an auxiliary measure, to
remove the effusion, may be resorted to
with advantage. The anti-Emetic
plaster, may I think prove serviceable
as plants of the species Burgundiaca is
a very popular remedy, applied ei-
ther to the front or back part of the
Thorax.



The Digitalis has been much recommended by Dr. Tugue of Cork, on account of which is given by Dr. Thomas. The particular cases to which the Digitalis is suited, have not been pointed out. I should suppose it suited to those cases of the disease complicated with effusions in the Chest, and general anaemia, in debilitated subjects. The fumigations have also been recommended and the particular may be seen in the work published by Augustin.

Having by the proper application of the above remedies, cured the complaint, the patient will be still subject to return of the disease, unless the application of the remedy ceases. To effect radical cure the patient should select his residence in a



country which is suited to his par-
ticular constitution. No precise
rules can be given on this subject.
In general, mountainous countries
elbowe with advantage. If also
pepsia exists, it should be removed
as speedily as possible. The State of
the bowels should be particularly
attended to. The diet should be
nourishing and light; his drink
of the best kind; he should
take gentle exercise, his clothing
should be warm.

If the patient be
young, and of a good habit, it may
be radically cured; but in the aged
and infirm it often proves extremely
troublesome; & a cure cannot in all
cases be effected. The appearances
or dispositions are various. When



death has suddenly taken place, no
appearance of disease is visible; this
is indirect proof of the disease being
Spasmodic; & the spasm relaxing
after death: in other cases, effusions
of serum in the Thorax; & not unfrequent
by the cellular structure of the lungs
is filled with mucus. The stomach
and other of the abdominal viscera
are often found in a disordered state,

